

GRASSHOPPERS

Vestal (Biol. Bull., 25:141-180, 1913) contributes an ecological paper on "Local Distribution of Grasshoppers in Relation to Plant Associations". He finds that the distribution of grasshopper species within the region studied bears evident relation to the plant associations and the extent of the latter marks the areas of the different habitats. Grasshoppers select habitats or associations in which favorable conditions are to be found, irrespective of past history, extensiveness, geographical or successional relationships of the vegetation. Only rarely is there any direct relation between grasshopper species and species composition of the plant associations, as few grasshoppers are selective feeders. The following points are also brought out: Grasshopper species can be arranged according to gradients of environmental factors. Grasshopper succession is incidental to the development of vegetation; the change is not only one of species but one of habits as well. Grasshopper species have in general the geographic range of the types of associations which include the necessary physical and vegetational conditions. Species of least definite local distribution are widespread geographically. Seasonal differences in time of activity of grasshopper species, probably in part due to the antagonistic influence of other animals, is marked. Seasonal and local distribution are interrelated. Species of indefinite local distribution have also least definite time distribution.